

Livestack flies - sw

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
ENTOMOLOGY RESEARCH BRANCH
BELTSVILLE, MARYLAND

OCT 4 1956

October 3, 1956

To: R. C. Bushland, Box 232, Kerrville, Texas

From: A. W. Lindquist, Head, Insects Affecting Man
and Animals Section

Subject: Proposed Screw-worm Field Tests with Plant Pest
Control Branch

We have been helping Dr. Knipling prepare a letter and plan of work together with estimated costs for future screw-worm field tests with the Plant Pest Control Branch. The attached material is a copy of a rough draft sent to Mr. Burgess of that Branch. You will note the program is not as ambitious as originally planned for the reason that we cannot ask ARS or the Budget Office for increased funds at this time. Requests for funds precede actual use by at least one year and frequently two years so we must carry the items indicated in the requirements. Dr. Knipling has indicated he will pay for a new Cobalt unit from funds available to him. You will note we are expecting the Plant Pest Control Branch to furnish three biological aids and three laborers to assist with the rearing of the insects.

I hope that your L/A is sufficient so as to provide the \$15,000 under "additional operating expenses". We will be able to help you somewhat from my L/A funds. If you have any comments, please let us have them right away.

I have talked to Mr. Jefferson and he believes the Cobalt unit could be made available about March 15 which is much earlier than originally expected. We have already asked for authority to purchase a unit identical to the one provided for the fruit fly research in Hawaii. As I recall you examined the plans and discussed this unit with Mr. Jefferson and apparently you were satisfied with it. It is a 400 Curie unit but I am not sure as to the diameter and depth of the well but I assume you found it satisfactory.

A. W. Lindquist

Attachment

cc: C. L. Smith

To: K. S. Quisenberry, Director, Crops Research
From: E. F. Knipling, Chief, Entomology Research Branch
Subject: Need for Joint Work With a Screw-worm Control Unit
to Develop Operational Plans for an Eradication Program

The research program on eradication procedures for the screw-worm has reached a stage of development when it is necessary to undertake certain operations which will be designed to bridge the wide gap between research and actual program operations. To undertake this work will require the joint support of our research personnel and the unit that is to carry out the actual eradication if and when such program is developed.

In our estimates of needs made as far back as 1950 and 1951, we recognized the necessity for operational tests to develop detailed procedures that will be followed in actual control operations. We estimated that additional financial support above developmental research needs would be required to bridge the gap between developmental research and operational research. Such funds have not been available. We have gone about as far as possible with research funds alone, and it is proposed that the intermediate step be conducted and supported jointly by our research branch and the unit that is to be designated to carry out control operations. In so far as we can determine at this time such program can be carried out without a large expenditure of funds.

To: K. S. Gundersen, Director, Group Research
From: E. V. Knapik, Chief, Pathology Research Branch
Subject: Need for Joint Work With a Serow-worm Control Unit
to Develop Operational Plans for an Eradication Program

The research program on eradication procedures for the serow-worm has reached a stage of development when it is necessary to undertake certain operations which will be designed to bridge the wide gap between research and actual program operations. To undertake this work will require the joint support of our research personnel and the unit that is to carry out the actual eradication it and when such program is developed.

In our estimates of needs made as far back as 1950 and 1951, we recognized the necessity for operational tests to develop detailed procedures that will be followed in actual control operations. We estimated that additional financial support above developmental research needs would be required to bridge the gap between developmental research and operational research. Such funds have not been available. We have gone about as far as possible with research funds alone, and it is proposed that the immediate step be conducted and supported jointly by our research branch and the unit that is to be designated to carry out control operations. In as far as we can determine at this time such program can be carried out without a large expenditure of funds.

2-K. S. Quisenberry-

Our research team has proceeded to obtain information which might be regarded as a joint responsibility with control personnel. For example, much time and funds have been expended on the design and operation of a pilot plant that is capable of producing a million screw-worm flies per week. In consultation with the engineers of the Department of Defense, much consideration has also been given to designs for the final 50-million-fly rearing plant.

A great deal of consideration has also been given to methods of releasing the irradiated flies. Our research personnel have consulted with the Aircraft and Special Equipment Center of the Plant Pest Control Branch which is directed by Mr. Messenger. This unit has made estimates of the cost of flying services and has made preliminary designs of dispersal equipment.

Although considerable progress has been made in developing various aspects of an operational program, much remains to be done to provide procedures for maximum effectiveness and economy of operation in a control program. We feel that a series of operational tests which, as previously indicated, are beyond the scope of our facilities need to be carried out jointly by the research and control units.

Our research team has proceeded to obtain information which might be regarded as a joint responsibility with control personnel. For example, much time and funds have been expended on the design and operation of a pilot plant that is capable of producing a million screw-worm flies per week. In consultation with the engineers of the Department of Defense, much consideration has also been given to designs for the final 50-million-fly rearing plant. A great deal of consideration has also been given to methods of releasing the irradiated flies. Our research personnel have consulted with the Aircraft and Special Equipment Center of the Plant Pest Control Branch which is directed by Mr. Messenger. This unit has made estimates of the cost of flying services and has made preliminary designs of dispersal equipment. Although considerable progress has been made in developing various aspects of an operational program, much remains to be done to provide procedures for maximum effectiveness and economy of operation in a control program. We feel that a series of operational tests which, as previously indicated, are beyond the scope of our facilities need to be carried out jointly by the research and control units.

3-K. S. Quisenberry-

We have discussed with the staff in the Plant Pest Control Branch the possibility of undertaking such joint efforts. However, the Plant Pest Control Branch is reluctant to commit any substantial financial support to such operations without proper authorization from the Department.

We are therefore outlining below the type of joint work which we regard as necessary in the further development of the operational program, prior to starting the actual eradication effort. The proposed contribution of our Branch and proposed contributions of the control unit authorized to assume the control functions are indicated. The cost of carrying out the six months' program will strain the facilities and budget of the Entomology Research Branch, and some financial assistance would therefore be exceedingly helpful if ARS is in a position to provide some non-recurring funds for this special work. We are prepared, however, to provide the personnel, equipment and funds proposed for this Branch.

1. Determine maximum satisfactory airplane swath interval for releasing the sterile flies.

In the Curacao experiment the width of airplane swaths was one mile, but it seems probable that the width can be increased to 2 or 3 miles with a corresponding saving on

for this special work. We are prepared, however, to provide the

4-K. S. Quisenberry

costs for distributing irradiated flies. For example, if releases can be three miles apart, the cost of release will be only one-third the cost of one mile interval. An experiment is needed, therefore, to compare one mile versus three mile widths. Similar areas containing at least 400 square miles each (20 x 20 miles) and possibly up to 900 square miles will be selected. Suitable animal hosts will be exposed in pens near the center of each plot for a few days before release of flies to obtain an index of the number and fertility of egg masses. Flight lanes will be marked and flies dispersed in one mile lanes in one plot and three mile lanes in the other. Fly releases will be made in each plot every fifth day for 4 weeks. Evaluation of results will be made by a comparison of sterile and fertile egg masses on goats. This experiment probably should be replicated two or three times to establish the relative effectiveness of the two swath release distances. If no difference between one and three miles is indicated, wider intervals should be tested. Since it is necessary to have comparable tests, releases must be made at the same time. Hence two planes and pilots must be provided for.

5-K. S. Quisenberry-

2. Release intervals.

In the Curacao experiment flies were released twice weekly. If releases could be made once a week, a considerable savings in time and expense would result. It is highly desirable, therefore, to compare releases of flies at 3, 5, and 7 day intervals. The experimental plots will be set up as before and flies released according to the most effective swath width and at different intervals of time between releases. Several replicates of the tests will no doubt be necessary.

3. Dispersal devices.

Dispersal devices on which the Aircraft and Special Equipment Center have given some thought will need testing under field conditions in a manner similar to the tests outlined above. However, we are advised that these tests cannot be carried out with their present resources.

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Dispersal devices on which the attractant and special equipment center have given some thought will need testing under field conditions in a manner similar to the tests outlined above. However, we are advised that these tests cannot be carried out with their present resources.

ESTIMATED JOINT REQUIREMENTS OF THE ENTOMOLOGY
RESEARCH BRANCH AND THE CONTROL UNIT TO CARRY
OUT A SIX MONTHS' PROGRAM ON SCREW-WORM
ERADICATION PROCEDURES

A. Entomology Research Branch Contributions (6 months' period)

1. Rearing flies and checking of results

The present staff at Orlando for rearing flies and checking results (6 months)

1 GS-12, $\frac{1}{2}$ time	\$2,031
3 GS-9	8,698
3 GS-5 Biol. Aids	4,366
2 Laborers	<u>2,500</u>

Total for personnel	\$17,595
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Additional operating expenses

(goats, supplies, transportation

and meat for media) \$15,000

New Cobalt unit and housing vault

for sterilizing flies since the

one available is not large enough

for proposed tests 15,000

Total for equipment	<u>30,000</u>
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Grand Total	\$47,595
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ESTIMATED JOINT REQUIREMENTS OF THE ENTOMOLOGY
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ERADICATION PROCEDURES

A. Entomology Research Branch Contributions (6 months' period)

1. Rearing flies and checking of results

The present staff at Orlando for rearing flies and checking
results (6 months)

1 GS-12, 1/2 time	\$2,071
3 GS-9	\$,098
3 GS-5 Biol. Aids	\$,366
2 Laborers	<u>\$,200</u>

Total for personnel \$17,292

Additional operating expenses

(Goals, supplies, transportation

and meat for media) \$15,000

New Cobalt unit and housing units

for sterilizing flies since the

one available is not large enough

for proposed tests \$15,000

Total for equipment \$30,000

Grand Total \$47,292